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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2019 Missile Defense Agency	<b>Date:</b> February 2018
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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>
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COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	143.645	81.376	101.839	81.001	-	81.001	77.654	68.026	101.091	81.903	Continuing	Continuing
MT11: <i>BMDS Radars Test</i>	139.887	76.628	98.437	78.095	-	78.095	74.374	65.052	98.538	79.353	Continuing	Continuing
MD40: <i>Program Wide Support</i>	3.758	4.748	3.402	2.906	-	2.906	3.280	2.974	2.553	2.550	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$17.600M is required to address emergency warfighting requirements in support of SM-3 Block IIA Missile Test.

**A. Mission Description and Budget Item Justification**

MDA Sensors executes a robust test program that includes flight and ground tests to support both strategic and regional BMDS capabilities against medium- and long-range threats. The Sensors elements of the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development to ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable. The Sensors Test Program Element specifically includes the planning, execution, and analysis of flight and ground tests and the associated infrastructure.

The Sensors test program provides data required for the Technical Capability Declaration for European Phased Adaptive Approach (EPAA) Phase III Robust Intermediate Range Ballistic Missile (IRBM) Defense, Enhanced Homeland Defense, and Mid-term Discrimination Improvements. It supports Operational Test and Evaluation of the regional and strategic BMDS architecture that will be fielded at the end of Calendar Year 2018.

The Sensors test program will support Long Range Discrimination Radar (LRDR) integration into BMDS, GMD Redesigned Kill Vehicle (RKV) developmental testing, mid- and far-term Discrimination Improvements, and Operational Test and Evaluation of the theater/regional and strategic BMDS architecture that will be fielded at the end of Calendar Year 2021.

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$17.600M is required to address emergency warfighting readiness requirements to ensure readiness of the BMDS.

+\$17.600M Project MT11 BMDS Radars Test: required to fund a SM-3 IIA flight test, in FY19, to demonstrate a capability against threat target in support of homeland defense.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Missile Defense Agency				Date: February 2018	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)		PE 0604879C I Ballistic Missile Defense Sensor Test			
B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	83.250	84.239	65.886	-	65.886
Current President's Budget	81.376	101.839	81.001	-	81.001
Total Adjustments	-1.874	17.600	15.115	-	15.115
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	4.900	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-6.774	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• FY 2017 Request for Additional Appropriations	0.000	0.000	0.000	-	0.000
• Missile Defeat and Defense Enhancement	0.000	17.600	0.000	-	0.000
• Other Adjustment	0.000	0.000	15.115	-	15.115
Change Summary Explanation					
The FY 2017 reprogramming of +\$6.774M reflects a decrease due to IMTP schedule changes. The increase from PB18 to PB19 in FY 2019 reflects a schedule change to align with the IMTP.					
FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$17.600M is required to address emergency warfighting requirements in support of SM-3 Block IIA Missile Test.					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604879C / Ballistic Missile Defense Sensor Test				Project (Number/Name) MT11 / BMDS Radars Test			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MT11: BMDS Radars Test	139.887	76.628	98.437	78.095	-	78.095	74.374	65.052	98.538	79.353	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note N/A												
A. Mission Description and Budget Item Justification This project provides activities for planning, analysis, and execution of BMDS flight test events, including pre- and post-test ground testing such as Digital and Hardware-in-the-Loop (HWIL) Pre-Mission Tests (PMTs) and Post-Flight Reconstruction (PFR). Sensors Test provides planning, analysis, and execution for BMDS system level ground tests identified in the IMTP. Test infrastructure funding provides for HWIL labs and program management required to operate and maintain a flight and ground test capability.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2017	FY 2018	FY 2019	
Title: Flight Test Execution  <div>Articles:</div> <b>Description:</b> Flight Test Execution includes test planning, pre-flight analysis, transportation of radars, test execution, and post-flight analysis for Sensors' participation in BMDS flight tests in accordance with the BMDS IMTP. Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> - SEE ABOVE.  <b>FY 2019 Plans:</b> - SEE ABOVE.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Decrease from FY 2018 to FY 2019 reflects Sensors participation in BMDS flight tests in accordance with the IMTP									41.761	53.234	28.950	
									-	-	-	
Title: Ground Test Execution  <div>Articles:</div> <b>Description:</b> Ground Test Execution includes event planning, asset integration, execution and post-mission analysis for Sensors' participation in BMDS ground tests in accordance with the BMDS IMTP. Specific and/or unique accomplishments to each FY are as follows:									19.197	28.500	29.833	
									-	-	-	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>	<b>Project (Number/Name)</b> MT11 / <i>BMDS Radars Test</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
<b><i>FY 2018 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2019 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b> Increase from FY 2018 to FY 2019 reflects Sensors' participation in BMDS ground tests in accordance with the IMTP.			
<b><i>Title:</i></b> Test Resources	15.670	16.703	19.312
<b><i>Articles:</i></b>	-	-	-
<b><i>Description:</i></b> Test Resources efforts include configuration and maintenance of Sensors Hardware-in-the-Loops (HWILs) for use in ground test execution (BMDS and element developmental testing) and in BMDS flight test execution pre-mission testing. Test Resources also provide support for evolving Objective Stimulation Framework (OSF) (software upgrades) integration into the BMDS HWIL ground test execution and flight test execution. Specific and/or unique accomplishments to each FY are as follows:			
<b><i>FY 2018 Plans:</i></b> - SEE ABOVE			
<b><i>FY 2019 Plans:</i></b> - SEE ABOVE			
<b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b> Increase from FY 2018 to FY 2019 reflects addition of LRDR test infrastructure.			
<b>Accomplishments/Planned Programs Subtotals</b>	76.628	98.437	78.095

**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603179C: <i>Advanced C4ISR</i>	3.489	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.489
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	252.665	278.145	220.876	-	220.876	250.238	267.502	263.758	260.273	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	465.433	454.862	475.168	-	475.168	515.239	494.873	492.119	515.529	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency									Date: February 2018			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0604879C / Ballistic Missile Defense Sensor Test				Project (Number/Name) MT11 / BMDS Radars Test				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• 0603898C: Ballistic Missile Defense Joint Warfighter Support	47.402	48.954	48.767	-	48.767	53.418	51.448	54.076	54.061	Continuing	Continuing	
• 0603904C: Missile Defense Integration and Operations Center (MDIOC)	53.483	53.265	54.925	-	54.925	58.498	57.764	59.020	61.915	Continuing	Continuing	
• 0603907C: Sea Based X-Band Radar (SBX)	115.201	145.695	149.715	-	149.715	175.013	155.718	129.044	136.390	Continuing	Continuing	
• 0603914C: Ballistic Missile Defense Test	294.441	316.193	365.681	-	365.681	349.388	320.909	320.332	327.584	Continuing	Continuing	
• 0604873C: Long Range Discrimination Radar (LRDR)	186.172	357.659	164.562	-	164.562	91.603	78.112	108.167	133.728	Continuing	Continuing	
• 13999903: Planning and Design, Defense Wide	8.233	8.397	8.525	-	8.525	8.822	0.000	0.000	0.000	Continuing	Continuing	
• D1400634: Upgrade Early Warning Radar (UEWR), Clear AFS, AK	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Remarks												
D. Acquisition Strategy												
Test & Evaluation projects use multiple existing development contracts depending on the system(s) involved in the testing.												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>				Project (Number/Name) MT11 / <i>BMDs Radars Test</i>					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - AN/TPY-2 & SBX BMDs Level Testing	SS/CPAF	Raytheon : MA	45.143	38.602	Mar 2017	38.543	Mar 2018	21.090	Mar 2019	-		21.090	Continuing	Continuing	Continuing
Flight Test Execution - FT Security, Site Activation & Deployments	Various	Various : HI, CO, AL	14.842	3.159	Jan 2017	13.507	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Flight Test Execution - LRDR BMDs Level Testing	SS/TBD	Lockheed Martin : NJ	0.000	0.000		0.032	Nov 2017	5.568	Jan 2019	-		5.568	Continuing	Continuing	Continuing
Flight Test Execution - UEWR/CD BMDs Level Testing	C/FPIF	deciBel : AL	0.000	0.000		1.152	Nov 2017	2.292	Nov 2018	-		2.292	Continuing	Continuing	Continuing
Ground Test Execution - AN/TPY-2 & SBX BMDs Level Testing	SS/CPFF	Raytheon : MA	34.691	14.344	Feb 2017	20.518	Feb 2018	16.765	Feb 2019	-		16.765	Continuing	Continuing	Continuing
Ground Test Execution - UEWR/CD BMDs Level Testing	C/FPIF	deciBel : AL	7.217	4.853	Jan 2017	7.982	Jan 2018	13.068	Jan 2019	-		13.068	Continuing	Continuing	Continuing
Test Resources - AN/TPY-2 & SBX SSF Integration & Infrastructure, Sys Test Lab	SS/CPFF	Raytheon : MA	27.434	12.893	Dec 2016	12.770	Dec 2017	13.269	Dec 2018	-		13.269	Continuing	Continuing	Continuing
Test Resources - Cyber Win10 Implementation - MDDC Lab Analysis Infrastructure	C/IDIQ	Analytical Services, Inc. : AL	0.825	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Resources - Cybersecurity - BGTC and SBIRS	C/IDIQ	Northrop Grumman Space & Mission System : CO	1.600	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Resources - Cybersecurity - Tactical Communication	MIPR	SPAWAR : CA	0.190	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Missile Defense Agency												<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>				<b>Project (Number/Name)</b> MT11 / <i>BMDs Radars Test</i>				

  

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Environment Segment (TCES)															
Test Resources - LRDR SSF Integration & Infrastructure, Sys Test Lab	C/FFP	Lockheed Martin : NJ	0.000	0.000		0.000		1.973	Jan 2019	-		1.973	Continuing	Continuing	Continuing
Test Resources - UEWR SSF Integration & Infrastructure, Sys Test Lab	C/FPIF	deciBel : AL	7.945	2.777	Nov 2016	3.933	Nov 2017	4.070	Nov 2018	-		4.070	Continuing	Continuing	Continuing
<b>Subtotal</b>			139.887	76.628		98.437		78.095		-		78.095	Continuing	Continuing	N/A

  

<b>Remarks</b> N/A															
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	<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	139.887	76.628		98.437		78.095		-		78.095	Continuing	Continuing	N/A

  

<b>Remarks</b> N/A															
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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency										Date: February 2018																			
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>										Project (Number/Name) MT11 / <i>BMDs Radars Test</i>									
Significant Event Complete ▲		Significant Event Planned △		Milestone Decision Complete ★		Milestone Decision Planned ☆		Element Test Complete ◆		Element Test Planned ◇		System Level Test Complete ●				System Level Test Planned ○				Complete Activity ◆				Planned Activity ◇					
										FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023							
IMTP v19.1 flight and ground test event details are at a higher classification.										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604879C / Ballistic Missile Defense Sensor Test	Project (Number/Name) MT11 / BMDS Radars Test	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IMTP v19.1 flight and ground test event details are at a higher classification.	1	2017	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604879C / Ballistic Missile Defense Sensor Test				Project (Number/Name) MD40 / Program Wide Support			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD40: Program Wide Support	3.758	4.748	3.402	2.906	-	2.906	3.280	2.974	2.553	2.550	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) reflects proportional changes as a result of budget changes in the Ballistic Missile Defense Sensor Test Program element. Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests on the R-3.

**A. Mission Description and Budget Item Justification**

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
<b>Title:</b> Program Wide Support	4.748	3.402	2.906
<b>Articles:</b>	-	-	-
<b>Description:</b> N/A			
<b>FY 2018 Plans:</b> N/A			
<b>FY 2019 Plans:</b> N/A			
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	4.748	3.402	2.906

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> N/A		
<b>E. Performance Metrics</b> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604879C / Ballistic Missile Defense Sensor Test				Project (Number/Name) MD40 / Program Wide Support					
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA	0.000	0.074	Jul 2017	0.068	Jul 2018	0.044	Jul 2019	-		0.044	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	MIPR	Various : Multi: AL, VA	3.758	4.674	Aug 2017	3.334	Aug 2018	2.862	Feb 2019	-		2.862	Continuing	Continuing	Continuing
Subtotal			3.758	4.748		3.402		2.906		-		2.906	Continuing	Continuing	N/A
Remarks N/A															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			3.758	4.748		3.402		2.906		-		2.906	Continuing	Continuing	N/A
Remarks N/A															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency														Date: February 2018																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Missile Defense Agency			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604879C / <i>Ballistic Missile Defense Sensor Test</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2017	4	2023